

## WIRELESS ENHANCER USING A SWITCH MATRIX

### ABSTRACT

[0043] An improved enhancer is disclosed which uses a switch matrix to increase the isolation between two antennas. For either an reverse link or forward link communication, the enhancer has a first antenna for receiving an incoming signal, and a receiver sub-system that amplifies and converts the incoming signal from the first antenna to a first predetermined frequency band. The enhancer further has a demodulator coupled to the receiver sub-system for demodulating the converted signal, and detecting timing information thereof. Also contained in the enhancer is a transmitter sub-system operable with the receiver sub-system that converts the signal from the receiver sub-system to a second predetermined frequency band and further amplifies the signal. After the signal is thus enhanced, a second antenna is used for further transmitting the amplified signal from the transmitted sub-system. The switch matrix controls connection switching among the first antenna, the second antenna, the transmitter sub-system, and the receiver sub-system, wherein the connection switching of the switch matrix is made based on the timing information detected by the demodulator and based on whether the incoming signal comes from a terminal or a base transceiver station .